The Afghanistan Engineering Support Program assembled this deliverable. It is an approved, official USAID document. Budget information contained herein is for illustrative purposes. All policy, personal, financial, and procurement sensitive information has been removed. Additional information on the report can be obtained from Firouz Rooyani, Tetra Tech Sr. VP International Operations, (703) 387-2151.



ENGINEERING SUPPORT PROGRAM

WO-LT-0039

Construction of Health and Education Facilities (CHEF) Environmental Site Assessment Services



This report was prepared for the United States Agency for International Development, Contract No. EDH-I-00-08-00027-00, Task Order 01, Afghanistan Engineering Support Program.

Principal Contacts:

VP International Operations Senior Vice President Project Manager
Tetra Tech, Inc. Tetra Tech, Inc.
Washington, DC Framingham, MA Framingham, MA

Chief of Party Tetra Tech, Inc. Kabul, Afghanistan



September 08, 2011

COTR

USAID – Office of Infrastructure, Engineering and Energy (OIEE) Café Compound U.S. Embassy Great Masood Road Kabul, Afghanistan

Re: WO-LT-0039 Construction of Health and Education Facilities (CHEF) Environmental Site Assessment Services

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Enclosed is the Environmental Site Assessment Services review of the CHEF Mitigation Plan dated 08 September 2011.

We consider this to be the final deliverable for this work order. Please feel free to contact us with any questions or comments.

Respectfully,

Acting Chief of Party (OIEE-AESP) Tetra Tech, Inc.

Cc: (USAID-OIEE)

AFGHANISTAN ENGINEERING SUPPORT PROGRAM

WO-LT-0039

Construction of Health and Education Facilities (CHEF) Environmental Site Assessment Services

08 September 2011

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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1.0 Introduction

The Construction of Health and Education Facilities (CHEF) program was begun in 2008 and International Office for Migration (IOM) was chosen to implement the program. In cooperation with the Afghan Government, USAID identified Provincial Teacher Training Centers (PTTC), Midwife Training Centers (MTC) and Hospitals in various provinces to be constructed. Nine of the facilities are under construction or completed. An Initial Environmental Examination (IEE) was produced 21 October 2008.

Tetra Tech (Tt) was awarded Notice to Proceed (NTP) on WO-LT-0039 on 1 June 2011. Tt has been contracted to perform an Environmental Site Assessment based on the impacts and mitigation measures listed in the "Potential Environmental Impacts and Recommended Mitigation Measures" table of the CHEF Program IEE provided by USAID and in various documents that were developed by IOM for the program.

All 9 sites were visited to see if the environmental mitigation plan addresses all environmental impacts of the work as well as to identify any additional impacts that were not included in the existing environmental mitigation plan and provide appropriate mitigation measures for those impacts. The IOM environmental mitigation plan addresses all environmental impacts of the work. No additional impact categories were identified, but a few additional impacts within the defined categories were recognized (Appendix A).

2.0 Environmental Mitigation Review

The CHEF construction sites visited were very well run compared to local standards. The problems identified were minimal and can be easily rectified. The general problems associated with most sites were related to: initial and interval chemical and biological sampling of onsite wells, aquifer capacity and water treatment, waste disposal at approved locations, material importing from approved sources, secondary containment for hazardous materials, lack of spill kits, lack of use of native landscaping, UXO clearance to appropriate depths and lack of documentation in the project files.

Initial well sampling for chemical and biological concerns was completed at most sites. Some sites did not receive full or any sampling. Ongoing interval sampling has not been conducted at any site. No documentation of plans for interval sampling was available. Three sites have insufficient or undocumented well capacity. The use of chlorine to disinfect water at untested wells may be used, but there is no documentation or plans at present to use chlorine.

There is a lack of approved locations for waste disposal and material importing. Most sites have hired a local private business for disposal of wastewater, solid waste and hazardous waste. There is no segregation of waste streams for this reason as well. Hazardous waste spills are not properly planned for and hazardous waste spill kits are not present. There is no secondary containment for fuel storage and usage. Materials imported for use during construction have not been from approved facilities as, generally, these sources do not exist.

Native landscaping has not been documented for use within the final design or used at the completed Khost site at present.

All sites received UXO clearance from UN MACCA prior to construction. UN MACCA clearances are to a depth of 1.5 meters. Septic tanks, holding tanks and some building footings installed during construction exceeded this depth. There was no evidence that further UXO clearance by UN MACCA or dedicated onsite UXO screening was obtained prior to excavations beyond 1.5 meters.

The electronic files provided by IOM lacked various reports; including O&M and Hydrogeologic Investigation and Final Well Reports.

3.0 CHEF Sites Overview

The nine sites are listed below.

Provincial Teacher Training Colleges (PTTC):

- 1) Charikar, Parwan Province (Tt inspection 20 June 2011)
- 2) Jalalabad, Nangarhar Province (Tt inspection 26 June 2011)
- 3) Maidan Shar, Wardak Province (IOM inspection 7 July 2011)
- 4) Maimana, Faryab Province (Tt inspection 28 July 2011)

Midwife training Centers (MTC):

- 5) Faizabad, Badakhshan Province (Tt inspection 5 July 2011)
- 6) Khost, Khost Province (USAID inspection 30 July 2011)
- 7) Bamyan, Bamyan Province (Tt inspection 28 July 2011)

Hospitals:

- 8) Gardez, Paktia Province (IOM inspection- 7 July 2011)
- 9) Khair Kot, Paktika Province (IOM inspection 9 July 2011)

The PTTC sites consist of:

- 1) Total building area of 4,772 m2.
- 2) Academy Building consisting of 21 Classrooms and 3 Laboratories in 2 stories for 600 students. 1,974 m2.
- 3) Male Dormitory for 100 students. 1,201m2.
- 4) Female Dormitory for 100 students. 1,201 m2.
- 5) Kitchen and Dining areas. 285 m².
- 6) Guard House. 24 m2.
- 7) Generator Room. 30 m2.
- 8) Water Well.
- 9) Water Tower with 63 m3 volume.
- 10) Boundary Security Wall of ~520 m.
- 11) Site areas vary from 11,839 m2 to 15,082 m2.

The MTC sites consist of:

- 1) Total building area of 1,440 m2.
- 2) Academy Buildings consisting of 2 Classrooms, 2 Laboratories and 1 Computer Laboratory for 60 students. 575 m2.
- 3) Dormitory for 40 students. 643 m2.
- 4) Guard House. 40.5 m2.
- 5) Generator Room with fuel tank. 98.15 m2.
- 6) Water Well.
- 7) Water Tower with 11 m3 volume.
- 8) Boundary Security Wall of ~400 m.
- 9) Site areas vary from 4,855 m2 to 9,942 m2.

The 100-Bed Hospital site at Gardez consists of:

- 1) Serves 1,000,000 beneficiaries.
- 2) Total building area of 9,735 m2.
- 3) Emergency Area. 470 m2.
- 4) Outpatient Ward and Examination Rooms. 1,317 m2.
- 5) Inpatient Ward. 1,870 m2.
- 6) Delivery Theatres. 250 m2.
- 7) Surgery Theatres. 616 m2.
- 8) Services and Mechanical Facilities. 873 m2.
- 9) Administration Facilities. 386 m2.
- 10) Guard House.
- 11) Water Well.
- 12) Water Tower.
- 13) Generator Room and Fuel Tank.
- 14) Boundary Security Wall of 678 m.
- 15) Total site area is 29,096 m2.

The 20-Bed Hospital site at Khair Kot consists of:

- 1) Serves 300,000 beneficiaries.
- 2) Total building area of 2,080 m2.
- 3) Male Ward. 372.1 m2.
- 4) Female Ward. 372.1 m2.
- 5) Outpatient Ward. 472.3 m2.
- 6) Main Building (Emergency and Operation Theatres). 862 m2.
- 7) Generator Building and Fuel Tank.
- 8) Water Well.
- 9) Water Tower. 68 m3.
- 10) Total site area is 14,298 m2.

4.0 CHEF Sites

4.1 Charikar, Parwan Province PTTC

The Charikar site visit was performed by Tt Senior Geologist on 20 June 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix B).



On-site construction generator with minor spillage and no secondary containment



Classroom (right) and Administration Building



Water well



Concrete debris and trash from the site disposed of adjacent to the site

4.2 Jalalabad, Nangarhar Province PTTC

The Jalalabad site visit was performed by Tt Senior Geologist on 26 June 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix C).



Temporary construction activity septic holding area



Generator with oil and fuel spills and/or leaks



Women's dorm (left) and kitchen



Existing site water well

4.3 Maidan Shar, Wardak Province PTTC

The Maidan Shar site visit was performed by IOM on 7 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix D).



Site work concrete testing



Finishing plaster at the door frame



Progress of concrete placement



Ongoing concrete construction

4.4 Maimana, Faryab Province PTTC

The Maimana site visit was performed by Tt Senior Engineer on 28 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix E).



Construction generator with no secondary containment



Pad construction for water well



School building and construction generator with no secondary containment



Generator building

4.5 Faizabad, Badakhshan Province MTC

The Faizabad site visit was performed by Tt Senior Engineer on 5 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix F).



Septic tank manholes and vent pipe for the main building



Secondary containment for permanent generator fuel storage



Generator building



Water well

4.6 Khost, Khost Province MTC

The Khost site visit was performed by USAID representative on 30 July 2011. As the construction is complete, there was little data on pre and during construction mitigation efforts. A generalized table was created to document usual deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix G).



Midwife Training Center (view 1)



Midwife Training Center (view 2)



Midwife Training Center Entrance and Guard Building



Midwife training Center outer wall

4.7 Bamyan, Bamyan Province MTC

The Bamyan site visit was performed by GardaWorld/Tt staff ton 28 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix H).



Construction generator with spills and/or leaks apparent



General site conditions



Fuel tank base and general site conditions



Well head adjacent a cement mixer

4.8 Gardez, Paktia Province 100 Bed Hospital

The Gardez site visit was performed by IOM on 7 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix I).



Wall foundation footing



Sewer pipe installation



Concrete block construction (view 1)



Concrete block construction (view 2)

4.9 Khair Kot, Paktika Province 20 Bed Hospital

The Khair Kot site visit was performed by IOM on 9 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix J).



Main building slab and beam



Concrete slump test



Concrete test cylinder preparation



Washing sand



Appendix A CHEF PTTC, MTC and Hospital IEE Mitigation Review

CHEF PTTC, MTC and Hospital IEE Mitigation Review				
Environmental Consideration	IOM Mitigation Measures			
	Pre-Construction Pre-Construction			
	Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement			
Building Site Selection and Design	Design incorporates wind direction and management of water supply, safe sanitation and solid waste disposal			
	Program shall include capacity building, including classroom and on the job training in construction methods, quality control and construction safety			
Socio-economics	Use of local subcontractors shall be encouraged whenever possible			
	Built in accordance with 1997 UBC Seismic level 4 design criteria and to withstand generally earthquakes of up to 7.5 on the Richter scale			
Geologic and Seismic Hazards	Design and construct project in accordance with appropriate seismic design criteria			
	If potential UXO identified, area shall immediately evacuated and secured			
	• UNMACCA or other qualified and authorized disposal organization shall be immediately notified and arrangements made to dispose of the potential UXO			
	• If excavation is required below the 1.5 m cleared zone or if excavation is required outside of the building footprint, a certified demining organization shall be			
Unexploded Ordnance (UXO)	employed to survey and clear the area prior to any works.			
Offexploded Ordifarice (UAO)	 UXO safety training on potential UXO ID and response If cultural resources are encountered, stop work and notify USAID and the Archaeological Committee of the Ministry of Information and Culture 			
	• Sub-Contractor shall take all necessary measures to protect the findings and shall notify the Contractor and provincial-level representatives if the Archeological			
Historic/Cultural/ Archaeological	Committee and the Ministry of Information and Culture.			
Resources	Project work shall be suspended until a solution for preservation of the artifacts is agreed upon			
. 10000.000	• Limit work to daylight hours			
	• Equipment maintained in good working order with proper exhaust system			
	Use noise barriers if warranted			
	• Locate stationary equipment with high intensity noise impacts away from neighboring residences when possible.			
Noise	Address neighbor complaints			
	Drilling and well sampling in accordance with industry standards			
	• Eliminate sources of pollution from near the well head (chemicals, soils)			
	No discharge into any water (surface and subsuface water)			
Hydrology (Groundwater Quality)	Keep existing stream courses and drains clean and free of debris			
	Backfill borings and test pits immediately			
	No significant impact to nearby agriculture			
0 11 (5 11 0 11 0 11)	Maintain equipment (including exhaust systems) in good working order			
Soils (Erosion, Soil Quality)	Drilling and soil sampling techniques in accordance with industry standards The interest of the first of the line of the standard of			
	 Incinerated on site (ideally single chamber), burial only with approval of MoPH, removal from the site by a certified disposal company Segregate waste streams, begin with sharps, separate into hazardous and general waste 			
	• Instruct management and staff on properly handling medical and general waste			
Healthcare Waste Management	Personal hygiene-soap and water readily available			
(Healthcare Projects Only)	Sharps handling-training on viral transmission (thick gloves/aprons for those handling healthcare waste)			
(and an an angle of the state	During Construction			
	Use of water (or equivalent) to suppress dust			
	Locate stationary dust-intensive operations (screening, crushing, etc.) away from neighboring residences when possible			
	• Establish stable ground cover to prevent mobilization of dust			
	Cover trucks transporting earth, sand or stone with tarps			
	Sub-Contractors will be required to spray excavation			
	and rehabilitation sites to keep them moist for dust control			
	Open burning will be prohibited in populated areas			
Air Quality (Dust)	and requirements for spraying and related dust control measures and the proper use of solvents and volatile materials will be incorporated in the contract provisions			
	Maintain equipment and vehicles in good working order			
	Limit vehicle idling			
]	Prohibit on-site open burning			
Air Quality (Exhaust emissions)	Require proper use of solvents and volatile materials			

CHEF PTTC, MTC and Hospital IEE Mitigation Review					
Environmental Consideration	IOM Mitigation Measures				
	Design plan to minimize changes in grade				
	Reuse excess soil on-site when appropriate				
	Reuse excess soil at appropriate off-site locations when possible				
Topography and Soils (Cut and fill)	Obtain imported fill from USAID or government approved quarries and construction material sources				
	 Implement erosion control measures (silt fences, stabilized construction entrances, benches/dikes) during construction 				
	Establish stable ground cover upon completion of construction				
Topography and Soils (Erosion)	Design and build appropriately sized storm water system				
Hydrology (Aquifer capacity)	Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report				
	Design potable treatment system in accordance with recommendations of Final Well Report				
	Construct and maintain water treatment system				
	Conduct sampling at well start up and regular intervals thereafter				
	• Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties)				
Hydrology (Groundwater quality)	Keep existing stream courses and drains clean and free of debris				
	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility				
	Construct and maintain waste water treatment plant				
Hydrology (Wastewater	Manage use (level) of pesticide (chlorine) for water disinfecting				
Management)	Implement odor control measures if necessary				
	Design and build an appropriate storm water management system				
Hydrology (Storm water)	Design and build drainage outfalls and infiltration ponds of sufficient capacity to receive storm water and treated wastewater				
	Train workers on Best Management Practices for fueling, maintaining and repairing equipment				
	• Train workers to properly store and label fuel and chemical containers				
Soils and Hazardous Waste	Train workers to respond to spills				
(Spills)	Provide on-site emergency spill kit				
	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal				
	• Segregate waste streams · Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable				
0.51	materials				
Solid and Hazardous Waste	• Implement odor control measures if necessary				
Management	Dispose of waste materials at USAID or government approved disposal sites/facilities				
	Landscaping plan that uses native plant species				
	• Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond				
	• No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the				
Flora (Plant species)	appropriate construction supervision activities to ensure that ancillary features are properly cited.				
Fauna (Wildlife)	Adverse impacts to threatened or endangered species are not anticipated as a result of this Project				
	• If cultural resources are encountered, stop construction and notify USAID and the Archaeological Committee of the Ministry of Information and Culture				
11: 4 : 40 14 14 4 1 1 1 1	• Sub-Contractor shall take all necessary measures to protect the findings and shall notify the Contractor and provincial-level representatives if the Archeological				
Historic/Cultural/ Archaeological	Committee and the Ministry of Information and Culture.				
Resources	Project work shall be suspended until a solution for preservation of the artifacts is agreed upon				
	Limit construction work to daylight hours				
	Locate stationary equipment with high intensity noise impacts away from neighboring residences when possible.				
	• Use noise barriers if warranted				
	Limit high intensity construction noise generating activities to daylight hours				
Noise	Address neighbor complaints Maintain aguinment in good working and a with proper exhaust systems and allengers if applicable.				
Noise	Maintain equipment in good working order with proper exhaust systems and silencers if applicable				

• D • W alte • T pec • C	Limit construction work to daylight hours Delivery of materials and equipment to the project sites shall be scheduled during periods of light traffic (e.g. early morning or late afternoon). Where necessary, pedestrian access way improvements shall be provided prior to starting construction activities, improvements could include sidewalks fencing, or Iternate routes The construction contractor shall provide flag men and other traffic control measures to avoid conflicts between construction traffic and other vehicles and/or edestrians. Coordinate haul routes with local officials				
• D • W alte • T pec • C	Delivery of materials and equipment to the project sites shall be scheduled during periods of light traffic (e.g. early morning or late afternoon). Where necessary, pedestrian access way improvements shall be provided prior to starting construction activities, improvements could include sidewalks fencing, or laternate routes The construction contractor shall provide flag men and other traffic control measures to avoid conflicts between construction traffic and other vehicles and/or edestrians. Coordinate haul routes with local officials				
I -					
Trailic • C	Consider roadway improvements/repairs if construction traffic or increases in traffic lead to road deterioration				
Post-Construction (Operational Phase)					
• E	Establish stable ground cover to prevent mobilization of dust				
Air Quality (Dust) • N	Maintain roadways to prevent mobilization of dust No open burning				
	Power from electrical grid will reduce need for generator use Limit vehicle idling				
	Establish stable ground cover upon completion of construction				
	Maintain storm water management system				
Hydrology (Aquifer capacity) • M	Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report				
• S	Maintain water treatment system Sample water supply well at regular intervals Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties)				
Hydrology (Wastewater • M	Maintain waste water treatment plant Manage use (level) of pesticide (chlorine) for water disinfecting Implement odor control measures if necessary				
+ E Hydrology (Storm water) + M	Establish stable ground cover upon completion of construction Maintain storm water system, drainage outfalls and infiltration ponds				
• Tourishing Soils and Hazardous Waste	Train workers to properly store and label fuel and chemical containers Train workers to respond to spills Provide on-site emergency spill kit The new underground electrical distribution system will reduce reliance on fuel-powered generators				
• S • In • D • A am sup	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials Dispose of waste materials at USAID or government approved disposal sites/facilities Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil mendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water upply is too limited to justify septic system use.				
	Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development.				
	In the event buried hazardous wastes are uncovered during excavation, all construction activities shall cease.				
	Landscaping plan that uses native plant species and does not require irrigation				
• M	Address neighbor complaints Maintain equipment in good working order with proper exhaust systems and silencers if applicable. Use noise barriers if warranted				
	Consider roadway improvements/repairs if construction traffic or increases in traffic lead to road deterioration				

Appendix B

Charikar, Parwan Province PTTC IEE Mitigation Items

	Charikar, Parwan Province PTTC IEE Mitigation I	tems
Environmental Consideration	Mitigation Measures	Observations/Recommendations
	Pre-Construction	
	• Incorporates passive solar and energy-efficiency including attention to site orientation,	
	building material and window placement	Design does not appear to include energy efficiencies.
	Design incorporates wind direction and management of water supply. Safe sanitation and	Recommendation: document any efficiencies designed and
Building Site Selection and Design	solid waste disposal	incorporated.
	Certificate Procedures for discovery, protection and notification	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN
	• Excavation depth (1.5 meters)	MACCA concerning excavation for holding/septic tanks or deep
UXO	Building outside design footprint	footings.
<u> </u>	During Construction	nootings.
		No measurement of water column after installation.
		Recommendation: install access at well head to allow for depth to
	Design, install and manage flow from supply well in accordance with recommendations of	water measurements. No Hydrogeologic Investigation and Final
Hydrology (Aquifer capacity)	Hydrogeologic Investigation and Final Well Report	Well Report available. Recommendation: File report in Project files.
	Design potable treatment system in accordance with recommendations of Final Well	
	Report - Construct and maintain water treatment quater	No regular interval well sampling. Recommendation: develop
	Construct and maintain water treatment system Conduct sampling at well start up and regular intervals thereafter	appropriate interval well sampling program. No Final Well Report
	Eliminate potential sources of groundwater contamination near well head (i.e. untreated)	available. Recommendation: File report in Project files. No planned
	sewage from neighboring properties)	water treatment system. Recommendation: plan and install
Hydrology (Groundwater quality)	Keep existing stream courses and drains clean and free of debris	appropriate water treatment system.
3 03 (1 3/	• Latrines will be considered during construction, and sanitary waste will be transported off-	
	site to a USAID or government approved disposal site/facility	No approved disposal facility. Recommendation: document usage
	Manage use (level) of pesticide (chlorine) for water disinfecting	of appropriate transporter or facility. No program of chlorine
Hydrology (Wastewater	Construct and maintain waste water treatment system	management for water disinfectant. Recommendation: manage use
Management)	• Implement odor control measures if necessary	of chlorine as a disinfectant.
	Train workers on Best Management Practices for fueling, maintaining and repairing	No according containment for somewhere and first filling area
	equipment Train workers to properly store and label fuel and chemical containers	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary
	Train workers to properly store and laber der and chemical containers Train workers to respond to spills	containment. No spill kit or training for usage. Recommendation:
Soils and Hazardous Waste (Spills)	Provide on-site emergency spill kit	Create spill kit and train workers on how to use it.
constant nazarasas viasts (opins)	Trends on one official spin inc	order opin in and dain nombre of north order in
	• Train workers on Best Management Practices for management of hazardous waste,	
	including labeling, storage, handling and proper off-site disposal	
	Segregate waste streams · Implement waste management strategy to limit use of	
	toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials	No approved disposal transporter/facility yet identified, no
Solid and Hazardous Waste	• Implement odor control measures if necessary	segregation due to lack of disposal facilities. Recommendation:
Management	Dispose of waste materials at USAID or government approved disposal sites/facilities I and sepain plan that uses native plant species.	document use of appropriate waste transporter or facility.
	Landscaping plan that uses native plant species Inlet protection measures will be installed following completion of the storm drain system to	
	prevent sedimentation of the downstream storm water infiltration pond	
	No potentially significant impacts to flora have been identified. Impacts to plant life and	No landscaping onsite during construction. Recommendation:
	agricultural crops during project works will be mitigated through the appropriate construction	Install appropriate landscaping or verify and document lack of area
Flora (Plant species)	supervision activities to ensure that ancillary features are properly cited.	appropriate for landscaping during construction.
·	Post-Construction (Operational Phase)	
	Manage flow from supply well in accordance with recommendations of Hydrogeologic	No Hydrogeologic Investigation and Final Well Report available.
Hydrology (Aquifer capacity)	Investigation and Final Well Report	Recommendation: file report in Project Files.

Charikar, Parwan Province PTTC IEE Mitigation Items					
Environmental Consideration	Mitigation Measures	Observations/Recommendations			
Hydrology (Groundwater quality)	Maintain water treatment system Sample water supply well at regular intervals Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties)	No regular interval well sampling planned. Recommendation: develop appropriate interval well sampling program. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.			
Hydrology (Wastewater Management)	Manage use (level) of pesticide (chlorine) for water disinfecting Maintain waste water treatment plant Implement odor control measures if necessary	No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.			
Soils and Hazardous Waste (Spills)	Train workers to properly store and label fuel and chemical containers Train workers to respond to spills Provide on-site emergency spill kit The new underground electrical distribution system will reduce reliance on fuel-powered	No O&M manual available to document soils and hazardous waste (spills) SOPs during operation. Recommendation: File O&M manual.			
Solid and Hazardous Waste Management	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials Dispose of waste materials at USAID or government approved disposal sites/facilities Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. Solid wastes likely to be disposed of at a site approved by Parwan Provincial Government, not by the Ministry of Urban Development. Recommendation: Document use of appropriate transporter or facility. No O&M manual available to document soils and hazardous waste management during operation. Recommendation: File O&M manual.			
Flora (Plant species)	Landscaping plan that uses native plant species and does not require irrigation	Landscaping plans do not utilize native plant species. Recommendation: New landscaping plan.			

Appendix C

Jalalabad, Nangarhar Province PTTC IEE Mitigation Items

Certificate Procedures for discovery, protection and notification Excavation depth (1.5 meters) MACCA concerning excavation for holding/septic tanks or deep (bottings.)	Jalalabad, Nangarhar Province PTTC IEE Mitigation Items		
Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement	Environmental Consideration	Mitigation Measures	Observations/Recommendations
Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement		Pre-Construction	
Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal			
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*Dispose of waste materials at USAID or government approved disposal sites/facilities *Landscaping plan that uses native plant species *Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond *No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited. *Dost-Construction (Operational Phase) *Manage flow from supply well in accordance with recommendations of Hydrogeologic No Hydrogeologic Investigation and Final Well Report available.	Calid and Hannadava Wasts	· · · · · · · · · · · · · · · · · · ·	1
Landscaping plan that uses native plant species Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited. Post-Construction (Operational Phase) Manage flow from supply well in accordance with recommendations of Hydrogeologic No Hydrogeologic Investigation and Final Well Report available.		į į	
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• No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited. Post-Construction (Operational Phase) • Manage flow from supply well in accordance with recommendations of Hydrogeologic No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction. No Hydrogeologic Investigation and Final Well Report available.		, ,	
agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited. Post-Construction (Operational Phase) Manage flow from supply well in accordance with recommendations of Hydrogeologic Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction. No Hydrogeologic Investigation and Final Well Report available.			No landscaping onsite during construction. Recommendation:
Flora (Plant species) supervision activities to ensure that ancillary features are properly cited. appropriate for landscaping during construction. Post-Construction (Operational Phase) • Manage flow from supply well in accordance with recommendations of Hydrogeologic No Hydrogeologic Investigation and Final Well Report available.			
Manage flow from supply well in accordance with recommendations of Hydrogeologic No Hydrogeologic Investigation and Final Well Report available.	Flora (Plant species)		
Manage flow from supply well in accordance with recommendations of Hydrogeologic No Hydrogeologic Investigation and Final Well Report available.	•		
			No Hydrogeologic Investigation and Final Well Report available.
	Hydrology (Aquifer capacity)		

Jalalabad, Nangarhar Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
	Maintain water treatment system	No initial and interval well sampling planned. Recommendation:
	• Sample water supply well at regular intervals	develop appropriate well sampling program. No planned water
Hydrology (Groundwater quality)	• Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties)	treatment system. Recommendation: plan and install appropriate water treatment system.
riyarology (Groundwater quality)	Manage use (level) of pesticide (chlorine) for water disinfecting	water treatment system.
Hydrology (Wastewater	Maintain waste water treatment plant	No program of chlorine management for water disinfectant.
Management)	Implement odor control measures if necessary	Recommendation: manage use of chlorine as a disinfectant.
	Train workers to properly store and label fuel and chemical containers	
	• Train workers to respond to spills	No O&M manual available to document soils and hazardous waste
Caile and Harandaya Wests (Caille)	Provide on-site emergency spill kit The provided and activities of distribution assets as will reduce relience on final necessarial.	(spills) SOPs during operation. Recommendation: File O&M
Soils and Hazardous Waste (Spills)	• The new underground electrical distribution system will reduce reliance on fuel-powered	manual.
	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal	
	Segregate waste streams	
	Implement waste management strategy to limit use of toxic/hazardous materials and	
	reduce unnecessary waste and recycle reusable materials	
	Dispose of waste materials at USAID or government approved disposal sites/facilities	
	Adequate sanitary facilities with septic systems and drain fields will be designed, with	
	provisions for pumping and use of human waste as an agricultural field soil amendment.	
	Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a	Waste streams not planned to be fully segregated. No approved
	management plan developed and implemented where water supply is too limited to justify	transporter or facility. Recommendation: Document use of
Solid and Hazardous Waste	septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously	appropriate transporter or facility. No O&M manual available to document soils and hazardous waste management during
Management	approved by the Ministry of Urban Development	operation. Recommendation: File O&M manual.
		Landscaping plans do not utilize native plant species.
Flora (Plant species)	Landscaping plan that uses native plant species and does not require irrigation	Recommendation: New landscaping plan.

Appendix D

Maidan Shar, Wardak Province PTTC IEE Mitigation Items

Maidan Shar, Wardak Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
	Pre-Construction	
	• Incorporates passive solar and energy-efficiency including attention to site orientation,	
	building material and window placement	Design does not appear to include energy efficiencies.
	• Design incorporates wind direction and management of water supply. Safe sanitation and	Recommendation: document any efficiencies designed and
Building Site Selection and Design	solid waste disposal	incorporated.
	Certificate	No UXO clearance beyond a depth of 1.5 meters.
	Procedures for discovery, protection and notification	Recommendation: Document lack of bombardment area with UN
	• Excavation depth (1.5 meters)	MACCA concerning excavation for holding/septic tanks or deep
UXO	Building outside design footprint	footings.
	During Construction	
	Design plan to minimize changes in grade	
	Reuse excess soil on-site when appropriate	
	Reuse excess soil at appropriate off-site locations when possible	
	Obtain imported fill from USAID or government approved quarries and construction	No approved imported fill sources. Recommendation: document
Topography and Soils (Cut and fill)	material sources	use of appropriate import sources.
		No Hydrogeologic Investigation and Final Well Report available.
		Recommendation: file report in Project Files. Well is insufficient.
	• Design, install and manage flow from supply well in accordance with recommendations of	IOM is currently seeking a detailed hydrogeologic report for
Hydrology (Aquifer capacity)	Hydrogeologic Investigation and Final Well Report	Wardak. Water may be trucked to the facility during operations.
	Design potable treatment system in accordance with recommendations of Final Well	No initial or regular interval well sampling. Recommendation:
	Report	develop appropriate initial and interval well sampling program
	Construct and maintain water treatment system	if/once sufficient well is online. No Final Well Report available.
	Conduct sampling at well start up and regular intervals thereafter	Recommendation: File report in Project files, update or append with
	• Eliminate potential sources of groundwater contamination near well head (i.e. untreated	detailed hydrogeologic report forthcoming. No planned water
	sewage from neighboring properties)	treatment system. Recommendation: plan and install appropriate
Hydrology (Groundwater quality)	Keep existing stream courses and drains clean and free of debris	water treatment system.
	Latrines will be considered during construction, and sanitary waste will be transported off-	No approved transporter or facility yet identified. Recommendation:
	site to a USAID or government approved disposal site/facility	document use of appropriate transporter of facility. No water
	Construct and maintain waste water treatment plant	treatment system or plan for chlorine use. Recommendation: plan
Hydrology (Wastewater	Manage use (level) of pesticide (chlorine) for water disinfecting	and install appropriate water treatment system with plan for chlorine
Management)	Implement odor control measures if necessary Train work are an Post Management Prosting for fueling, maintaining and consisting.	usage.
	Train workers on Best Management Practices for fueling, maintaining and repairing	
	equipment	No according containment for reporters and five filling area
	Train workers to properly store and label fuel and chemical containers Train workers to respond to spills	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary
Soils and Hazardous Waste (Spills)	Provide on-site emergency spill kit	containment.
Solis and Hazardous Waste (Spills)	Triovide on-site emergency spili kit	Containment.
	Train workers on Best Management Practices for management of hazardous waste,	
	including labeling, storage, handling and proper off-site disposal	
	Segregate waste streams · Implement waste management strategy to limit use of	
	toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials	No approved transporter or facility identified, no segregation.
Solid and Hazardous Waste	Implement odor control measures if necessary	Recommendation: document use of appropriate waste transporter
Management	Dispose of waste materials at USAID or government approved disposal sites/facilities	or facility.
-	Landscaping plan that uses native plant species	
	• Inlet protection measures will be installed following completion of the storm drain system to	
	prevent sedimentation of the downstream storm water infiltration pond	
	No potentially significant impacts to flora have been identified. Impacts to plant life and	No landscaping onsite during construction. Recommendation:
	agricultural crops during project works will be mitigated through the appropriate construction	Install appropriate landscaping or verify and document lack of area
Flora (Plant species)	supervision activities to ensure that ancillary features are properly cited.	appropriate for landscaping during construction.

	Maidan Shar, Wardak Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations	
	Post-Construction (Operational Phase)		
Solid and Hazardous Waste	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials Dispose of waste materials at USAID or government approved disposal sites/facilities Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use.	Waste streams not planned to be fully segregated. No approved transporter or facility available. Recommendation: Document use of	
Management	approved by the Ministry of Urban Development	appropriate disposal transporter or facility.	

Appendix E

Maimana, Faryab Province PTTC IEE Mitigation Items

Maimana, Faryab Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
	Pre-Construction	
Building Site Selection and Design	Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and incorporated.
UXO	 Certificate Procedures for discovery, protection and notification Excavation depth (1.5 meters) Building outside design footprint 	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep footings/excavations.
	During Construction	
Topography and Soils (Cut and fill)	Design plan to minimize changes in grade Reuse excess soil on-site when appropriate Reuse excess soil at appropriate off-site locations when possible Obtain imported fill from USAID or government approved quarries and construction material sources	Imported fill not obtained from USAID or government approved quarries. Document use of appropriate sources of fill.
Hydrology (Aquifer capacity) Hydrology (Groundwater quality)	Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report Design potable treatment system in accordance with recommendations of Final Well Report Construct and maintain water treatment system Conduct sampling at well start up and regular intervals thereafter Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) Keep existing stream courses and drains clean and free of debris	Well ran dry during pump test. Recommendation: plan for future water usuage. No measurement of water column. Recommendation: gain access at well head to allow for depth to water measurements. No Hydrogeologic Investigation and Final Well Report available. Recommendation: File report in Project files. No initial chemical water testing. Recommendation: implement testing or document testing performed in project files. No regular interval well sampling. Recommendation: develop appropriate interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	Latrines will be considered during construction, and sanitary waste will be transported off- site to a USAID or government approved disposal site/facility Construct and maintain waste water treatment plant Manage use (level) of pesticide (chlorine) for water disinfecting Implement odor control measures if necessary Train workers on Best Management Practices for fueling, maintaining and repairing equipment	No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.
Soils and Hazardous Waste (Spills)	Train workers to properly store and label fuel and chemical containers Train workers to respond to spills Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment.
Solid and Hazardous Waste Management	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials Implement odor control measures if necessary Dispose of waste materials at USAID or government approved disposal sites/facilities	No approved disposal transporter or facility identified, no segregation. Recommendation: document use of appropriate waste transporter or facility.

Maimana, Faryab Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Flora (Plant species)	Landscaping plan that uses native plant species Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.	No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction.
Tiora (Fiant species)	Post-Construction (Operational Phase)	appropriate for failuscaping during construction.
Hydrology (Aquifer capacity)	Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.
Hydrology (Groundwater quality)	 Maintain water treatment system Sample water supply well at regular intervals Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties) 	No interval well sampling planned. Recommendation: develop appropriate well sampling program.
Hydrology (Wastewater Management)	Manage use (level) of pesticide (chlorine) for water disinfecting Maintain waste water treatment plant Implement odor control measures if necessary	No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.
Soils and Hazardous Waste (Spills)	Train workers to properly store and label fuel and chemical containers Train workers to respond to spills Provide on-site emergency spill kit The new underground electrical distribution system will reduce reliance on fuel-powered	No O&M manual available to document soils and hazardous waste (spills) SOPs during operation. Recommendation: File O&M manual.
Solid and Hazardous Waste Management	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials Dispose of waste materials at USAID or government approved disposal sites/facilities Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. No approved transporter or facility. Recommendation: Document use of appropriate transporter or facility. No O&M manual available to document soils and hazardous waste management during operation. Recommendation: File O&M manual.
Flora (Plant species)	Landscaping plan that uses native plant species and does not require irrigation	Landscaping plans do not utilize native plant species. Recommendation: New landscaping plan.

Appendix F

Faizabad, Badakhshan Province MTC IEE Mitigation Items

Faizabad, Badakhshan Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
	Pre-Construction	
	Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement Design incorporates wind direction and management of water supply. Safe sanitation and	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and
Building Site Selection and Design	solid waste disposal • Certificate	incorporated. No UXO clearance beyond a depth of 1.5 meters.
	Procedures for discovery, protection and notification Excavation depth (1.5 meters)	Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep
UXO	Building outside design footprint	footings.
	During Construction	
	 Design plan to minimize changes in grade Reuse excess soil on-site when appropriate Reuse excess soil at appropriate off-site locations when possible Obtain imported fill from USAID or government approved quarries and construction 	Imported soil not from approved location. Recommendation:
Topography and soils (cut and fill)	material sources • Design, install and manage flow from supply well in accordance with recommendations of	Document use of appropriate source. No measurement of water column. Recommendation: gain access at well head to allow for depth to water measurements. No Hydrogeologic Investigation and Final Well Report available.
Hydrology (Aquifer capacity)	Hydrogeologic Investigation and Final Well Report	Recommendation: File report in Project files.
	Design potable treatment system in accordance with recommendations of Final Well Report Construct and maintain water treatment system Conduct sampling at well start up and regular intervals thereafter Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties)	No interval well sampling. Recommendation: develop appropriate interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install appropriate
Hydrology (Groundwater quality)	Keep existing stream courses and drains clean and free of debris	water treatment system.
Hydrology (Wastewater Management)	 Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility Construct and maintain waste water treatment system Manage use (level) of pesticide (chlorine) for water disinfecting Implement odor control measures if necessary 	No approved disposal transporter/facility yet identified. Recommendation: document use of appropriate wastewater transporter/facility. No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.
Soils and Hazardous Waste (Spills)	Train workers on Best Management Practices for fueling, maintaining and repairing equipment Train workers to properly store and label fuel and chemical containers Train workers to respond to spills Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment. No spill kit and training. Recommendation: create spill kit and train all workers.
Solid and Hazardous Waste Management	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials Implement odor control measures if necessary Dispose of waste materials at USAID or government approved disposal sites/facilities	Some site waste disposed adjacent to site. No approved disposal transporter or facility identified, no segregation. Recommendation: use and document use of appropriate waste transporter or facility.
Flora (Plant species)	Landscaping plan that uses native plant species Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.	

Faizabad, Badakhshan Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
	Post-Construction (Operational Phase)	
Hydrology (Aquifer capacity)	Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.
Hydrology (Groundwater quality)	 Maintain water treatment system Sample water supply well at regular intervals Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties) 	No interval well sampling planned. Recommendation: develop appropriate well sampling program. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	Manage use (level) of pesticide (chlorine) for water disinfecting Maintain waste water treatment system Implement odor control measures if necessary	No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.
Solid and Hazardous Waste Management	 Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials Dispose of waste materials at USAID or government approved disposal sites/facilities Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development 	Waste streams not planned to be fully segregated. Solid waste not planned to be disposed of with an approved transporter or facility. Recommendation: Document use of appropriate transporter and/or facility. No O&M manual available to document soils and hazardous waste management during operation. Recommendation: File O&M manual.
Flora (Plant species)	Landscaping plan that uses native plant species and does not require irrigation	Landscaping plans do not utilize native plant species. Recommendation: New landscaping plan.

Appendix G

Khost, Khost Province MTC IEE Mitigation Items

Khost, Khost Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
	Pre-Construction	
	Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement	Design does not appear to include energy efficiencies.
Building Site Selection and Design	Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal Certificate	Recommendation: document any efficiencies designed and incorporated. No UXO clearance beyond a depth of 1.5 meters.
	Procedures for discovery, protection and notification Excavation depth (1.5 meters)	Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep
UXO	Building outside design footprint	footings.
	During Construction	
	Design plan to minimize changes in grade	
	Reuse excess soil on-site when appropriate	
	Reuse excess soil at appropriate off-site locations when possible	
T 1 1 1 () 1 ()	Obtain imported fill from USAID or government approved quarries and construction	Imported soil not from approved location. Recommendation:
Topography and soils (cut and fill)	material sources	Document use of appropriate source. No measurement of water column. Recommendation: gain access
		at well head to allow for depth to water measurements. No
	Design, install and manage flow from supply well in accordance with recommendations of	Hydrogeologic Investigation and Final Well Report available.
Hydrology (Aquifer capacity)	Hydrogeologic Investigation and Final Well Report	Recommendation: File report in Project files.
	Design potable treatment system in accordance with recommendations of Final Well	No initial biological sampling. Recommendation: develop initial
	Report	biological sampling program. No regular interval well sampling.
	Construct and maintain water treatment system	Recommendation: develop appropriate interval well sampling
	Conduct sampling at well start up and regular intervals thereafter Climinate patential accuracy of regular divistes contemination programs the patential accuracy of the contemination programs.	program. No Final Well Report available. Recommendation: File
	• Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties)	report in Project files. No planned water treatment system. Recommendation: plan and install appropriate water treatment
Hydrology (Groundwater quality)	Keep existing stream courses and drains clean and free of debris	system.
, are regy (ereamanater quamy)	Latrines will be considered during construction, and sanitary waste will be transported off-	No approved disposal transporter/facility yet identified.
	site to a USAID or government approved disposal site/facility	Recommendation: document use of appropriate wastewater
	Construct and maintain waste water treatment system	transporter/facility. No water treatment system or plan for chlorine
Hydrology (Wastewater	Manage use (level) of pesticide (chlorine) for water disinfecting	use. Recommendation: plan and install appropriate water treatment
Management)	Implement odor control measures if necessary	system with plan for chlorine usage.
	Train workers on Best Management Practices for fueling, maintaining and repairing	No
	equipment Train workers to properly store and label fuel and chemical containers	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary
	Train workers to properly store and laber der and chemical containers Train workers to respond to spills	containment. No spill kit and training. Recommendation: create spill
Soils and Hazardous Waste (Spills)	Provide on-site emergency spill kit	kit and train all workers.
(-)		
	• Train workers on Best Management Practices for management of hazardous waste,	
	including labeling, storage, handling and proper off-site disposal	
	Segregate waste streams · Implement waste management strategy to limit use of	
	toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials	No approved disposal transporter or facility identified, no
Solid and Hazardous Waste	Implement odor control measures if necessary	segregation. Recommendation: use and document use of
Management	Dispose of waste materials at USAID or government approved disposal sites/facilities Landscaping plan that uses native plant species	appropriate waste transporter or facility.
	Inlet protection measures will be installed following completion of the storm drain system to	
	prevent sedimentation of the downstream storm water infiltration pond	
	No potentially significant impacts to flora have been identified. Impacts to plant life and	No landscaping onsite during construction. Recommendation:
	agricultural crops during project works will be mitigated through the appropriate construction	Install appropriate landscaping or verify and document lack of area
Flora (Plant species)	supervision activities to ensure that ancillary features are properly cited.	appropriate for landscaping during construction.

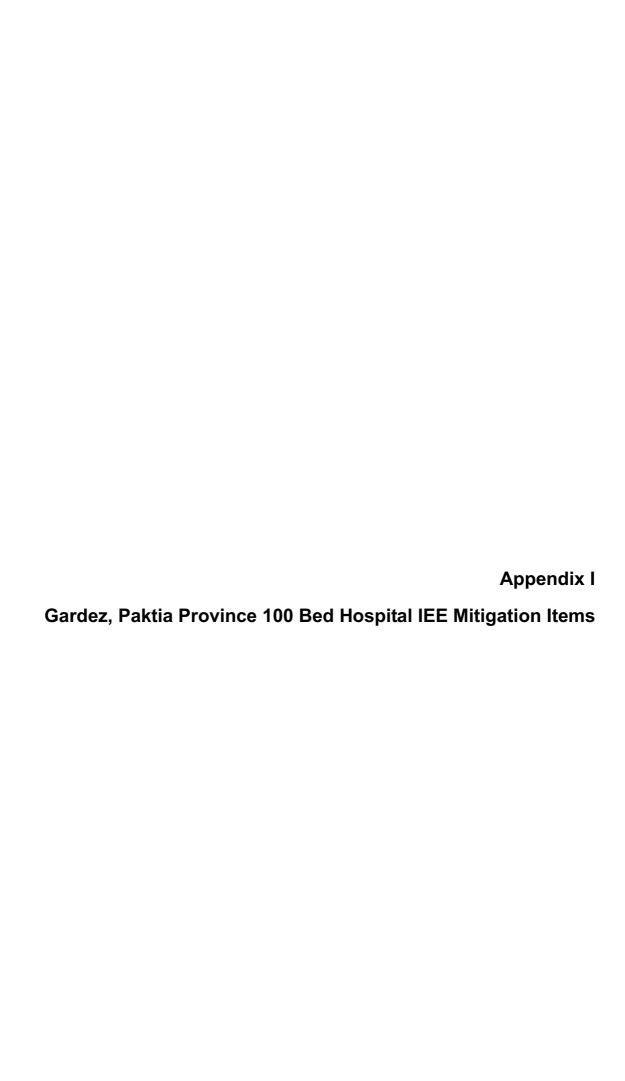
Khost, Khost Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
	Post-Construction (Operational Phase)	
Hydrology (Aquifer capacity)	Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.
Hydrology (Groundwater quality)	 Maintain water treatment system Sample water supply well at regular intervals Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties) 	No interval well sampling planned. Recommendation: develop appropriate well sampling program. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	Manage use (level) of pesticide (chlorine) for water disinfecting Maintain waste water treatment system Implement odor control measures if necessary	No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.
Solid and Hazardous Waste Management	 Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials Dispose of waste materials at USAID or government approved disposal sites/facilities Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development 	Waste streams not planned to be fully segregated. Solid waste not planned to be disposed of with an approved transporter or facility. Recommendation: Document use of appropriate transporter and/or facility.
Flora (Plant species)	Landscaping plan that uses native plant species and does not require irrigation	Landscaping plans do not utilize native plant species. Recommendation: New landscaping plan.

Appendix H

Bamyan, Bamyan Province MTC IEE Mitigation Items

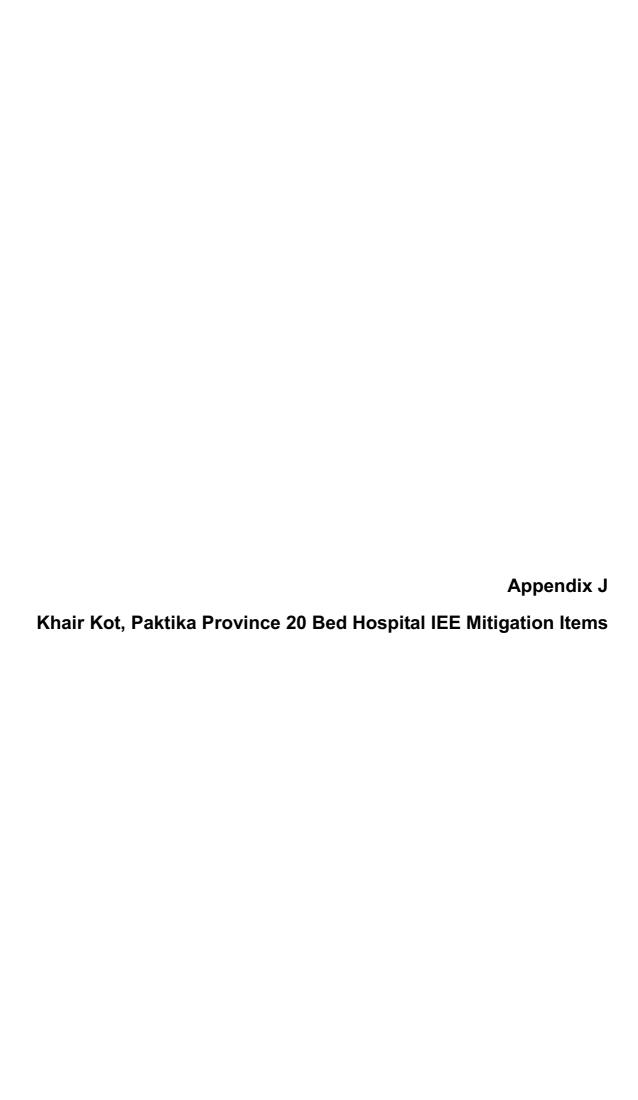
Pre-Construction Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement obegin incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal of Certificate of Procedures for discovery, protection and notification Recommendation: document any efficiencies of solid waste disposal of Procedures for discovery, protection and notification Recommendation: document any efficiencies of solid waste disposal of Procedures for discovery, protection and notification Recommendation: document any efficiencies of solid waste disposal of Procedures for discovery, protection and notification Recommendation: document lack of bombard MACCA concerning excavation for holding/seg footing. UXO I Use of water (or equivalent) to suppress dust Locate stationary dust-intensive operations (screening, crushing, etc.) away from neighboring residences when possible - Establish stable ground cover to prevent mobilization of dust Control measures and requirements for spraying and related dust control and rehabilitation sites to keep them moist for dust control on and rehabilitation sites to keep them moist for dust control on and rehabilitation sites to keep them moist for dust control on and requirements for spraying and related dust control measures and the proper use of solvents and votatile meterials will be incorporated in the contract provisions Air Quality (Dust) Air Quality (Exhaust emissions) Air Quality (Exhaust emissions) Prohibit on-site open burning and related dust control measures and the proper use of solvents and votatile meterials will be incorporated in the contract provisions Air Quality (Exhaust emissions) Design plan to minimize changes in grade Reuse excess soil on-site when appropriate Design plan to minimize changes in grade Reuse excess soil on-site when appropriate		Bamyan, Bamyan Province MTC IEE Mitigation I	
Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement	ronmental Consideration	Mitigation Measures	Observations/Recommendations
building material and window placement - Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal - Certificate - Procedures for discovery, protection and notification - Excavation depth (1.5 meters) - Building outside design footprint - During Construction - Uso of water (or equivalent) to suppress dust - Locate stationary dust-intensive operations (screening, crushing, etc.) away from neighboring residences when possible - Establish stable ground cover to prevent mobilization of dust - Cover trucks transporting earth, sand or stone with tarps - Sub-Contractors will be required to spray excavation and rehabilitation sites to keep them moist for dust control - Open burning will be prohibited in populated areas and requirements for spraying and related dust control measures and the proper use of solvents and volatile materials will be incorporated in the contract provisions Air Quality (Exhaust emissions) - Maintain equipment and vehicles in good working order - Limit vehicle idling - Prohibit on-site open burning - Prohibit on-site open burning - Propography and soils (cut and fill) - Design plan to minimize changes in grade - Reuse excess soil at appropriate off-site locations when possible - Obtain imported fill from USAID or government approved quarries and construction - Design potable treatment system in accordance with recommendations of Hydrogeologic Investigation and Final Well Report - Design potable treatment system in accordance with recommendations of Final Well Recommendation: Excavation and potable and reterable well as a purporpriate interval well sampling. Recommendation: Design paporporate interval well sampling. Recommendation of develop appropriate interval well and interval well sampling. Recommendation: Design propriate interval well and interval well sampling. Recommendation: Design propriate interval well sampling. Rec		Pre-Construction	
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Certificate Procedures for discovery, protection and notification Procedures for discovery, protection and notification Excavation depth (1.5 meters) Building outside design footprint During Construction Use of water (or equivalent) to suppress dust Locate stationary dust-intensive operations (screening, crushing, etc.) away from neighboring residences when possible Establish stable ground cover to prevent mobilization of dust Cover trucks transporting earth, sand or stone with tarps Sub-Contractors will be required to spray excavation and rehabilitation sites to keep them moist for dust control Open burning will be prohibited in populated areas and requirements for spraying and related dust control Open burning will be incorporated in the contract provisions Maintain equipment and vehicles in good working order Limit vehicle idling Prohibit on-site open burning Prohibit on-site open burning was pendented to proper use of solvents and volatile materials will be incorporated in the contract provisions Air Quality (Exhaust emissions) Prohibit on-site open burning was pendented to the contract provisions Prohibit on-site open burning was pendented to the contract provisions Prohibit on-site open burning was pendented to spray be proper use of solvents and volatile materials	• D	Design incorporates wind direction and management of water supply. Safe sanitation and	Recommendation: document any efficiencies designed and
Procedures for discovery, protection and notification Excavation depth (1.5 meters) MACCA concerning excavation for holding/sep footings. During Construction	ng Site Selection and Design sol	olid waste disposal	
Excavation depth (1.5 meters) Building outside design footprint	• C	- Dertificate	
UXO - Building outside design footprint			Recommendation: Document lack of bombardment area with UN
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Conduct sampling at well start up and regular intervals thereafter develop appropriate initial and interval well sar		•	No initial or regular interval well sampling. Recommendation:
		•	develop appropriate initial and interval well sampling program. No
			Final Well Report available. Recommendation: File report in Project
			files. No planned water treatment system. Recommendation: plan
			and install appropriate water treatment system.
			No approved disposal transporter/facility yet identified.
			Recommendation: document use of appropriate wastewater
			transporter/facility. No water treatment system or plan for chlorine
			use. Recommendation: plan and install appropriate water treatmen
Management) • Implement odor control measures if necessary system with plan for chlorine usage.	55 (· · · · · · · · · · · · · · · · · · ·

	Bamyan, Bamyan Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations	
	Train workers on Best Management Practices for fueling, maintaining and repairing		
	equipment	No secondary containment for generators and fuel filling area.	
	Train workers to properly store and label fuel and chemical containers	Recommendation: plan and install appropriate secondary	
	Train workers to respond to spills	containment. No spill kit and training. Recommendation: create spill	
Soils and Hazardous Waste (Spills)	Provide on-site emergency spill kit	kit and train all workers.	
	Post-Construction (Operational Phase)		
	Manage flow from supply well in accordance with recommendations of Hydrogeologic	No Hydrogeologic Investigation and Final Well Report available.	
Hydrology (Aquifer capacity)	Investigation and Final Well Report	Recommendation: file report in Project Files.	
	Maintain water treatment system	No interval well sampling planned. Recommendation: develop	
	Sample water supply well at regular intervals	appropriate well sampling program. No planned water treatment	
	• Eliminate potential sources of groundwater contamination near well head (I.E. untreated	system. Recommendation: plan and install appropriate water	
Hydrology (Groundwater quality)	sewage from neighboring properties)	treatment system.	
	Manage use (level) of pesticide (chlorine) for water disinfecting		
Hydrology (Wastewater	Maintain waste water treatment system	No program of chlorine management for water disinfectant.	
Management)	Implement odor control measures if necessary	Recommendation: manage use of chlorine as a disinfectant.	
	Train workers on Best Management Practices for management of hazardous waste,		
	including labeling, storage, handling and proper off-site disposal		
	Segregate waste streams		
	Implement waste management strategy to limit use of toxic/hazardous materials and		
	reduce unnecessary waste and recycle reusable materials		
	Dispose of waste materials at USAID or government approved disposal sites/facilities		
	Adequate sanitary facilities with septic systems and drain fields will be designed, with		
	provisions for pumping and use of human waste as an agricultural field soil amendment.	Waste streams not planned to be fully segregated. Solid waste not	
	Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a	planned to be disposed of with an approved transporter or facility.	
	management plan developed and implemented where water supply is too limited to justify	Recommendation: Document use of appropriate transporter and/or	
	septic system use.	facility. No O&M manual available to document soils and hazardous	
Solid and Hazardous Waste	• Solid wastes shall be transported off the site and disposed of in a disposal site previously	waste management during operation. Recommendation: File O&M	
Management	approved by the Ministry of Urban Development	manual.	
		Landscaping plans do not utilize native plant species.	
Flora (Plant species)	Landscaping plan that uses native plant species and does not require irrigation	Recommendation: New landscaping plan.	



Gardez, Paktia Province 100-Bed Hospital IEE Mitigation Items			
Environmental Consideration	Mitigation Measures	Observations/Recommendations	
	Pre-Construction		
	 Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement Design incorporates wind direction and management of water supply. Safe sanitation and 	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and	
Building Site Selection and Design	solid waste disposal • Certificate • Procedures for discovery, protection and notification	incorporated. No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN	
UXO	Excavation depth (1.5 meters) Building outside design footprint	MACCA concerning excavation for holding/septic tanks or deep footings.	
	During Construction	3	
	Design plan to minimize changes in grade		
	Reuse excess soil on-site when appropriate Reuse excess soil at appropriate off-site locations when possible Obtain imported fill from USAID or government approved quarries and construction	No approved imported fill sources. Recommendation: document	
Topography and Soils (Cut and fill)	material sources	use of appropriate import sources.	
Hydrology (Aquifer capacity)	Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.	
	Design potable treatment system in accordance with recommendations of Final Well Report Construct and maintain water treatment system Conduct sampling at well start up and regular intervals thereafter Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties)	No regular interval well sampling. Recommendation: develop appropriate interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install	
Hydrology (Groundwater quality) Hydrology (Wastewater Management)	Keep existing stream courses and drains clean and free of debris Latrines will be considered during construction, and sanitary waste will be transported offsite to a USAID or government approved disposal site/facility Construct and maintain waste water treatment plant Manage use (level) of pesticide (chlorine) for water disinfecting Implement odor control measures if necessary	appropriate water treatment system. No approved transporter or facility yet identified. Recommendation: document use of appropriate transporter of facility. No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.	
Soils and Hazardous Waste (Spills)	Train workers on Best Management Practices for fueling, maintaining and repairing equipment Train workers to properly store and label fuel and chemical containers Train workers to respond to spills Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment. No adequate spill kit. Recommendation: create spill kit.	
Solid and Hazardous Waste Management	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materialsImplement odor control measures if necessary Dispose of waste materials at USAID or government approved disposal sites/facilities	No approved transporter or facility identified, no segregation. Recommendation: document use of appropriate waste transporter or facility.	
Flora (Plant species)	 Landscaping plan that uses native plant species Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited. 	No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction.	

Gardez, Paktia Province 100-Bed Hospital IEE Mitigation Items				
Environmental Consideration	Mitigation Measures	Observations/Recommendations		
	Post-Construction (Operational Phase)			
Calid and Hannahara Weats	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials Dispose of waste materials at USAID or government approved disposal sites/facilities Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use.	Waste streams not planned to be fully segregated. No approved		
Solid and Hazardous Waste Management	• Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	transporter or facility available. Recommendation: Document use of appropriate disposal transporter or facility.		



Khair Kot, Paktika Province 20-Bed Hospital IEE Mitigation Items			
Environmental Consideration	Mitigation Measures	Observations/Recommendations	
	Pre-Construction		
	• Incorporates passive solar and energy-efficiency including attention to site orientation,		
	building material and window placement	Design does not appear to include energy efficiencies.	
	• Design incorporates wind direction and management of water supply. Safe sanitation and	Recommendation: document any efficiencies designed and	
Building Site Selection and Design	solid waste disposal	incorporated.	
	Certificate	No UXO clearance beyond a depth of 1.5 meters.	
	Procedures for discovery, protection and notification	Recommendation: Document lack of bombardment area with UN	
	• Excavation depth (1.5 meters)	MACCA concerning excavation for holding/septic tanks or deep	
UXO	Building outside design footprint	footings.	
	During Construction		
	Design plan to minimize changes in grade		
	Reuse excess soil on-site when appropriate		
	Reuse excess soil at appropriate off-site locations when possible		
	Obtain imported fill from USAID or government approved quarries and construction	No approved imported fill sources. Recommendation: document	
Topography and Soils (Cut and fill)	material sources	use of appropriate import sources.	
		No thirden and single law of the time and Single Mall Deposit on the law and	
	- Design, install and manage flaw from aupply well in accordance with recommendations of	No Hydrogeologic Investigation and Final Well Report available. No documentation of aquifer capacity. Recommendation: file report in	
Hydrology (Aguifor conscity)	Design, install and manage flow from supply well in accordance with recommendations of Hydrogoplasia Investigation and Final Wall Papert	Project Files.	
Hydrology (Aquifer capacity)	Hydrogeologic Investigation and Final Well Report • Design potable treatment system in accordance with recommendations of Final Well	Project Files.	
	Report		
	Construct and maintain water treatment system	No initial or regular interval well sampling. Recommendation:	
	Conduct sampling at well start up and regular intervals thereafter	develop appropriate initial and interval well sampling program. No	
	• Eliminate potential sources of groundwater contamination near well head (i.e. untreated	Final Well Report available. Recommendation: File report in Project	
	sewage from neighboring properties)	files. No planned water treatment system. Recommendation: plan	
Hydrology (Groundwater quality)	Keep existing stream courses and drains clean and free of debris	and install appropriate water treatment system.	
3 · · · · 37 (· · · · · · · · · · · · · · · · · ·	Latrines will be considered during construction, and sanitary waste will be transported off-	No approved transporter or facility yet identified. Recommendation:	
	site to a USAID or government approved disposal site/facility	document use of appropriate transporter of facility. No water	
	Construct and maintain waste water treatment plant	treatment system or plan for chlorine use. Recommendation: plan	
Hydrology (Wastewater	Manage use (level) of pesticide (chlorine) for water disinfecting	and install appropriate water treatment system with plan for chlorine	
Management)	Implement odor control measures if necessary	usage.	
	Train workers on Best Management Practices for fueling, maintaining and repairing		
	equipment	No secondary containment for generators and fuel filling area.	
	Train workers to properly store and label fuel and chemical containers	Recommendation: plan and install appropriate secondary	
	Train workers to respond to spills	containment. No adequate spill kit. Recommendation: create spill	
Soils and Hazardous Waste (Spills)	Provide on-site emergency spill kit	kit.	
	- Train workers on Boot Management Drestings for management of hazardaya wasta		
	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal		
	Segregate waste streams · Implement waste management strategy to limit use of		
	toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials	No approved transporter or facility identified, no segregation.	
Solid and Hazardous Waste	Implement odor control measures if necessary	Recommendation: document use of appropriate waste transporter	
Management	Dispose of waste materials at USAID or government approved disposal sites/facilities	or facility.	
Management	Landscaping plan that uses native plant species		
	• Inlet protection measures will be installed following completion of the storm drain system to		
	prevent sedimentation of the downstream storm water infiltration pond		
	No potentially significant impacts to flora have been identified. Impacts to plant life and	No landscaping onsite during construction. Recommendation:	
	agricultural crops during project works will be mitigated through the appropriate construction	Install appropriate landscaping or verify and document lack of area	
Flora (Plant species)	supervision activities to ensure that ancillary features are properly cited.	appropriate for landscaping during construction.	

Khair Kot, Paktika Province 20-Bed Hospital IEE Mitigation Items					
Environmental Consideration	Mitigation Measures	Observations/Recommendations			
Post-Construction (Operational Phase)					
Solid and Hazardous Waste	Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal Segregate waste streams Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials Dispose of waste materials at USAID or government approved disposal sites/facilities Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use.	Waste streams not planned to be fully segregated. No approved transporter or facility available. Recommendation: Document use of			
Management	approved by the Ministry of Urban Development	appropriate disposal transporter or facility.			

USAID/Afghanistan

U.S. Embassy Cafe Compound Great Masood Road Kabul, Afghanistan Tel: 202.216.6288

http://afghanistan.usaid.gov